

SELECTION OF CONTRACTORS TO PROVIDE LAUNCH SERVICES FOR NASA'S VENTURE CLASS LAUNCH SERVICES

On Friday, September 25, 2015, in the performance of my duties as the designated Source Selection Authority (SSA), I along with other senior officials within the Launch Services Program (LSP) met with the Venture Class Launch Service (VCLS) evaluation team members appointed to evaluate proposals for the VCLS requirement. Relevant portions of the VCLS team's evaluation of proposals, and my decision on selection of the successful offeror(s) are set forth in this Source Selection Statement.

PROCUREMENT HISTORY

The purpose of the VCLS requirement is to fly a portion of backlogged experimental U-Class payloads that are typically sent to LEO via rideshare on a space available basis. The VCLS team conducted market research, prepared an acquisition strategy, and developed a draft solicitation for industry comment. The VCLS RFP was issued on June 12, 2015, following the VCLS team's review and consideration of industry comments on the draft solicitation, and the final approval of its acquisition strategy. The VCLS RFP sought proposals for a Firm Fixed Price (FFP) launch services contract. During the course of the procurement, a total of two RFP amendments were issued by the Contracting Officer to incorporate minor changes into the RFP.

In response to the VCLS RFP, seven timely proposals were received on or before the due date of July 12, 2015 from the following companies:

AERA Space Technologies, Inc.
Firefly Space Systems
Interorbital Systems
Orbital ATK
Rocket Lab USA, Inc.
Virgin Galactic, LLC
Zero Point Frontiers Corporation

This acquisition was conducted using other than full and open competitive procedures in accordance with Federal Acquisition Regulation (FAR) 6.302-5, "Authorized or required by statute." The Commercial Space Act of 1998, 51 U.S.C. § 50131, requires that all commercial space transportation services be procured from domestic providers.

EVALUATION PROCEDURES

The RFP prescribed three evaluation factors: Technical and Management Capability, Past Performance, and Price, which were evaluated using the applicable procedures, adjectival ratings, levels of confidence, and definitions specified in the RFP, FAR subpart 15.3, and NFS subpart 1815.3, "Source Selection." The RFP advised offerors of the relative order of importance of these factors stating:

All evaluation factors other than cost or price when combined are approximately equal to cost or price; the Technical and Management Capability factor is more important than the Past Performance factor.

Under the procedures established in the RFP and the applicable acquisition regulations, the VCLS team was to evaluate the Technical and Management Capability of the proposals to identify significant strengths, strengths, weaknesses, significant weaknesses, deficiencies, or uncertainties requiring clarification. As a result of these findings, the VCLS team assigned an adjectival rating using the following adjectival ratings and definitions:

| Adjectival Rating | Definitions |
|-------------------|--|
| Excellent | A comprehensive and thorough proposal of exceptional merit with one or more significant strengths. No deficiency or significant weakness exists. |
| Very Good | A proposal having no deficiency and which demonstrates over-all competence. One or more significant strengths have been found and strengths outbalance any weaknesses that exist. |
| Good | A proposal having no deficiency and which shows a reasonably sound response. There may be strengths or weaknesses, or both. As a whole, weaknesses not offset by strengths do not significantly detract from the offeror's response. |
| Fair | A proposal having no deficiency and which has one or more weaknesses. Weaknesses outbalance any strengths. |
| Poor | A proposal that has one or more deficiencies or significant weaknesses that demonstrate a lack of overall competence or would require a major proposal revision to correct. |

With regard to the Technical and Management Capability, the RFP stated that the evaluation will be based on the offeror's ability to perform the minimum VCLS requirements described in the SOW. The RFP also stated the evaluation will assess the following: The offeror's knowledge, skill and understanding of the technical, managerial and operational details of launch vehicle testing, integration, check out, launch telemetry, and mission assurance. The offeror's understanding of the approach to providing the required skills to conduct effective and safe launch operations. Completeness of Systems Requirements Review (SRR) as referenced in Attachment 03, including a credible maturation to Technology Readiness Level (TRL) 9 (which may be accomplished by the VCLS launch), in the shortest amount of time within the VCLS period of performance, including risk identification and mitigation. The offeror's baseline

payload configuration and launch vehicle capability to accommodate a single spacecraft without consideration of a U-Class deployment mechanism, in order to help the Government understand the offeror's approach to re-configuring for the VCLS requirement. The offeror's ability to implement the concept of operations, including vehicle development and the ability to obtain approval/licensing (i.e., FAA) within the VCLS period of performance. Approval/licensing will involve coordination with the proposed launch site and Range (i.e., Flight Termination System (FTS) approvals). Ability to meet the proposed launch date(s), with launch(es) occurring earlier within the period of performance being viewed more favorably. The offeror's approach to securing financing for the development of their launch service that does not rely solely on the VCLS requirement. Ability to meet VCLS requirements in regards to total nonrecurring development funding remaining to obtain and percentage of nonrecurring development funding remaining to obtain (with lower amounts being more favorable). The offeror's strategy that demonstrates financial stability, including the number of launches required to demonstrate profitability or positive cash flow. The offerors small business subcontracting plan (if applicable) and its commitment to small business.

With regard to the Past Performance Factor, the RFP stated that the evaluation will be conducted in accordance with FAR 15.305(a)(2) and NFS 1815.305(a)(2). The offeror's recent and relevant performance of work similar in size, content, and complexity to the requirements of this acquisition will be evaluated. Relevant past performance references demonstrated the following: Demonstrated use of the proposed technical subsystems that supports the proposed launch vehicle configuration, increasing technical complexity with launch vehicle development and integration & testing, and experience with partnering for use of assets for integration & launch. For the Past Performance evaluation, the confidence level ratings defined in NFS 1815.305 were used by the VCLS evaluation team:

Very High Level of Confidence

The Offeror's relevant past performance is of exceptional merit and is very highly pertinent to this acquisition; indicating exemplary performance in a timely, efficient, and economical manner; very minor (if any) problems with no adverse effect on overall performance. Based on the Offeror's performance record, there is a very high level of confidence that the Offeror will successfully perform the required effort.

High Level of Confidence

The Offeror's relevant past performance is highly pertinent to this acquisition; demonstrating very effective performance that would be fully responsive to contract requirements with contract requirements accomplished in a timely, efficient, and economical manner for the most part with only minor problems with little identifiable effect on overall performance. Based on the Offeror's performance record, there is a high level of confidence that the Offeror will successfully perform the required effort.

Moderate Level of Confidence

The Offeror's relevant past performance is pertinent to this acquisition, and it demonstrates effective performance; fully responsive to contract requirements; reportable problems, but with little identifiable effect on overall performance. Based on the Offeror's performance record, there is a moderate level of confidence that the Offeror will successfully perform the required effort.

Low Level of Confidence

The Offeror's relevant past performance is at least somewhat pertinent to this acquisition, and it meets or slightly exceeds minimum acceptable standards; adequate results; reportable problems with identifiable, but not substantial, effects on overall performance. Based on the Offeror's performance record, there is a low level of confidence that the Offeror will successfully perform the required effort. Changes to the Offeror's existing processes may be necessary in order to achieve contract requirements.

Very Low Level of Confidence

The Offeror's relevant past performance does not meet minimum acceptable standards in one or more areas; remedial action required in one or more areas; problems in one or more areas which adversely affect overall performance. Based on the Offeror's performance record, there is a very low level of confidence that the Offeror will successfully perform the required effort.

Neutral

In the case of an Offeror without a record of relevant past performance or for whom information on past performance is not available, the Offeror may not be evaluated favorably or unfavorably on past performance.

Finally, with regard to the Price Factor, the RFP advised offerors that the Government would evaluate price based on the total proposed price to meet the VCLS 60kg minimum requirement.

The VCLS team evaluated all proposals against the evaluation criteria specified in the RFP. In addition to the evaluation of the factors identified above, the VCLS team ensured all solicitation requirements were met. Furthermore, as part of the evaluation process, the VCLS team analyzed each offerors administrative data which was comprised of financial information to determine responsibility to perform a contract of this magnitude, the model contract, acceptance of terms and conditions, and contract representations and certifications.

INITIAL EVALUATION OF PROPOSALS, COMPETITIVE RANGE DETERMINATION, AND DISCUSSIONS

Utilizing the aforementioned evaluation process, the evaluation team conducted an initial evaluation of the responsive proposals from the six¹ offerors. The resulting technical and management capability rating, past performance rating, and price evaluation of each offeror's proposal provided the basis for making a competitive range determination.

In accordance with FAR 15.306(c)(1), the Contracting Officer, with the concurrence of the SSA, determined that the following four offerors were within the competitive range: Firefly, Interorbital, Rocket Lab, and Virgin Galactic. The proposals submitted by AERA and ZPFC were not found to be among the most highly rated proposals and were therefore not included in the competitive range. The competitive range determination was documented in a memorandum for the record that was signed by the contracting officer and SSA on August 18, 2015. Written and oral discussions were held with each of the offerors determined to be within the competitive range, focusing on the weaknesses, significant weaknesses, deficiencies, and uncertainties requiring clarifications that the VCLS team had identified during the initial evaluation of proposals.

Following the Competitive Range determination in August, the VCLS team had increased concern about Interorbital's ability to successfully perform the VCLS requirement as a result of additional details related to the offeror's approach that was provided through two rounds of discussions. As a result of Interorbital's Technical and Schedule Risk deficiency which increased the risk of unsuccessful contract performance to an unacceptable level, the VCLS team met on September 18, 2015 to discuss eliminating Interorbital from the Competitive Range as they were no longer thought to be among the highest rated proposals. The VCLS team found a significant disparity between the three (Firefly, Rocket Lab, and Virgin Galactic) highest rated offerors and Interorbital, especially with regard to the Technical/Management Capability. As a result, the SSA and the VCLS team met on September 18, 2015 and rated all four offerors to determine if Interorbital still remained in the competitive range. The SSA and the VCLS team concluded that despite the lower price, the Interorbital proposal increased the risk of unsuccessful completion of the VCLS requirement to an unacceptable level. Based on the

¹ Orbital ATK submitted a proposal for a Minotaur II launch utilizing retired Minuteman booster assets. The proposal was determined to be non-responsive. Orbital's approach would have required NASA to certify the use of excess Intercontinental Ballistic Missiles for conversion for use as a space transportation vehicle by the Federal Government in accordance with the procedures set forth in 51 U.S.C. § 50134. This statute requires several determinations, including a certification that conversion "would result in cost savings to the Federal Government when compared to the cost of acquiring space transportation services from United States commercial providers." Results of market research and knowledge of the US commercial launch market does not support the necessary findings that would be required to certify conversion of an excess ICBM, as established in 51 U.S.C. § 50134.

foregoing, the Contracting Officer determined that the proposal submitted by Interorbital was no longer among the most highly rated in accordance with FAR 15.306(c) based on the ratings of each proposal against all evaluation criteria and therefore was eliminated from the Competitive Range.

FINAL PROPOSAL REVISION EVALUATIONS

Written and oral communications were held with the Offerors during the period of July 13, 2015 through September 21, 2015. The communications focused on the significant weaknesses, weaknesses, deficiencies, and uncertainties requiring clarification that the evaluation team identified during the initial evaluation of the proposals. Upon the conclusion of communications, Final Proposal Revisions (FPRs) were requested from the three remaining Offerors with a common due date of September 24, 2015 for submission. The VCLS evaluation team conducted a final evaluation of the FPR's and determined that there were no deficiencies, significant weaknesses, weaknesses or uncertainties requiring clarification in the Offeror's proposals. The VCLS evaluation team's evaluation of the FPR resulted in the identification of the findings shown in Table 1:

| FINDING TYPE | Firefly | Rocket Lab | Virgin |
|----------------------|----------------|-------------------|---------------|
| Deficiency | 0 | 0 | 0 |
| Significant Weakness | 0 | 0 | 0 |
| Weakness | 0 | 0 | 0 |
| Strength | 0 | 1 | 1 |
| Significant Strength | 2 | 1 | 3 |

Table 1 –Final Proposal Revision Findings

Firefly

The evaluation of the FPR resulted in an increased Technical and Management Capability rating for Firefly. No significant weaknesses, weaknesses, uncertainties requiring clarification, or strengths were found to remain in Firefly's proposal. Consequently, the VCLS team's report to the SSA focused on Firefly's significant strengths. One significant strength resulted from the offeror's proposal demonstrating the offeror's detailed knowledge and understanding of the design, test, analysis and manufacturing of their Alpha launch vehicle. Significant detail was provided on many component designs in the form of schematics, manufacturing plans, test descriptions and forward work indicate that the offeror has a strong understanding of the proposed design and technical operations. The second significant strength resulted from Firefly's Alpha launch vehicle being capable of a performance of 350kg to 425km orbit, which is significantly above the minimum 60kg requirement for a single launch.

Based on the detailed knowledge and understanding of the design, test, analysis and manufacturing it is clear that the offeror has a strong understanding of the design and technical operations and the significant excess performance the Alpha launch vehicle provides, it was determined that this was a comprehensive and thorough proposal of exceptional merit with one or more significant strengths and thus the VCLS team rated Firefly's proposal as **Excellent**.

Firefly's Past Performance was evaluated for recency, relevancy, and actual performance. Firefly demonstrated overall past performance that is pertinent to the VCLS acquisition and demonstrates effective performance. Firefly's past performance demonstrated key personnel having relevant experience. Several of Firefly's personnel held key positions with high-performing commercial companies within the space industry, such as SpaceX and Lockheed Martin. These personnel bring extensive knowledge of launch vehicles to Firefly. Accordingly, Firefly's Past Performance was assigned a **Moderate level of confidence** rating.

Firefly's proposed price (\$5.5M) was determined to be fair and reasonable based upon comparison of competitively proposed prices.

Rocket Lab

The evaluation of the FPR resulted in an increased Technical and Management Capability rating for Rocket Lab. No significant weaknesses, weaknesses, or uncertainties requiring clarification were found to remain in Rocket Lab's proposal. Consequently, the VCLS team's report to the SSA focused on Rocket Lab's significant strength and strength. A significant strength resulted from Rocket Lab's Electron launch vehicle being capable of a performance of 150kg to 500km orbit, which is significantly above the minimum 60kg requirement for a single launch. A strength resulted from the offeror proposing a launch date of December 15, 2016 which is over one year ahead of the period of performance requirement in the RFP.

Based on the significant excess performance the Electron launch vehicle provides and the early launch date, it was determined that this was a comprehensive and thorough proposal of exceptional merit with one or more significant strengths and thus the VCLS team rated Rocket Lab's proposal as **Excellent**.

Rocket Lab's Past Performance was evaluated for recency, relevancy, and actual performance. Rocket Lab's viscous liquid monopropellant (VLM) propulsion system development with DARPA and Aerojet and also their experience with the hypersonic experimental test platform study for Lockheed Martin demonstrates relevancy in the proposed technical subsystems that supports the proposed VCLS launch vehicle configuration. Rocket Lab successfully launched an AIM-9 analogue using VLM propulsion that successfully demonstrated throttling and shut down

during flight. Rocket Lab demonstrated overall past performance that is pertinent to the VCLS acquisition and demonstrates effective performance. Accordingly, Rocket Lab Past Performance was assigned a **Moderate level of confidence** rating.

Rocket Lab's proposed price (\$6.95M) was determined to be fair and reasonable based upon comparison of competitively proposed prices.

Virgin Galactic

The evaluation of the FPR did not change the Technical and Management Capability rating for Virgin. No significant weaknesses, weaknesses, or uncertainties requiring clarification, were found to remain in Virgin's proposal. Consequently, the VCLS team's report to the SSA focused on Virgin's three significant strengths and one strength. The first significant strength resulted from the detailed concept of operations that demonstrated the offeror's knowledge and understanding of the design, test, analysis and manufacturing of their launch vehicle.

The second significant strength resulted from Virgin's LauncherOne launch vehicle being capable of a performance of 200kg to 425km orbit, which is significantly above the minimum 60kg requirement for a single launch. The last significant strength resulted from the inclusion of a no-cost reflight of up to 60kg of payload as a secondary payload on a future LauncherOne flight in the event of a failure. Virgin's one strength resulted from the offeror proposing a multi-month launch window between October 1, 2017 and April 15, 2018 and the option for VCLS payloads to fly on one of the first two initial test flights prior to October 1, 2017.

Based on the detailed concept of operations that demonstrated the offeror's knowledge and understanding of the design, test, analysis and manufacturing of their launch vehicle, the significant excess performance the LauncherOne launch vehicle provides, the no-cost reflight in the event of a failure, and the launch date flexibility it was determined that this was a comprehensive and thorough proposal of exceptional merit with one or more significant strengths and thus the VCLS team rated Virgin's proposal as **Excellent**.

Virgin's Past Performance was evaluated for recency, relevancy, and actual performance. Virgin's design work for the DARPA ALASA demonstration system (development of SRR and a test/risk plan) and their integration work at NASA/Armstrong for Suborbital Reusable Launch Vehicles, and TriSept's mission integration activities under their contracts with ORSO and NRO demonstrates relevancy in the proposed technical subsystems that supports the proposed VCLS launch vehicle configuration and increasing technical complexity with launch vehicle development, integration and testing, and experience with partnering for use of assets for integration and launch. Furthermore, the Virgin team has recently been awarded a commercial launch service contract with OneWeb that contains work similar in size, content, and complexity

to the requirements of VCLS. Virgin demonstrated overall past performance that is highly pertinent to the VCLS acquisition and effective performance. Accordingly, Virgin Past Performance was assigned a **High level of confidence** rating.

Virgin's proposed price (\$4.7M) was determined to be fair and reasonable based upon comparison of competitively proposed prices.

SOURCE SELECTION DECISION

During the presentation, I was fully briefed on the procurement process and was given detailed evaluation materials concerning the three proposals within the competitive range- Firefly Space Systems, Rocket Lab USA, Inc., and Virgin Galactic, LLC. I questioned the evaluation team on the material presented and carefully considered the detailed findings presented by the team. Additionally, I solicited and considered the views of key senior personnel within the Launch Services Program. These key senior personnel have responsibility related to this procurement and understood the application of the evaluation factors set forth in the RFP. Soliciting additional comments or questions from these senior management officials present during the briefing yielded no significant issues or stated concerns.

In determining which proposal(s) offered the best value to NASA, I referred to following the relative order of importance of the three evaluation factors specified in the RFP:

All evaluation factors other than cost or price when combined are approximately equal to cost or price; the Technical and Management Capability factor is more important than the Past Performance factor.

Utilizing these evaluation factors, the RFP also provides that the Government intends to award a contract or contracts to the responsible offeror(s) whose offer(s) will be most advantageous to the Government, price and other factors considered. I note that this allows me to make a selection based on other than the lowest price, in accordance with the trade-off process described in FAR 15.101-1. Finally, I note that the RFP contemplates the award of one or more contracts. In conjunction with my requiring organization, I have determined that a sufficient backlog of U-class payloads have yet to be manifested and that funding is currently available to support the award of up to three contracts for dedicated launch services, should this scenario represent the most advantageous solution to the government. The selection rationale that follows was based on a comparative assessment of proposal against each of the three source selection factors.


I began by reviewing the findings presented by the source evaluation team within the Technical and Management Capability factor. While I note that this decision is a product of my

independent judgment, my review of the findings under this factor led me to adopt them as my own. I believe that the evaluation of Firefly, Rocket Lab, and Virgin Galactic's proposals was comprehensive, thorough, and well-documented. The resultant strengths and significant strengths captured by the SEB are reflective of the record. I first note that within the Technical and Management Capability factor, all three proposals received an "Excellent" rating. However, I do see appreciable differences between these proposals, particularly with respect to Virgin Galactic's approach. Virgin proposed the most technically mature concept of operations of the three offerors. This demonstrates that they understand the level of effort necessary to design, test, analyze, and manufacture a new launch vehicle that they are offering to perform the VCLS statement of work. Additionally, Virgin not only offers over 3X the performance capability required by VCLS, they also offer a reflight for no cost to the government in the event their first flight is unsuccessful. I consider this to represent a significant discriminator amongst the proposals. Firefly and Rocket Lab both also received "Excellent" ratings within this factor but for different reasons. Firefly demonstrated a very credible plan for maturing their Alpha launch vehicle through the various stages of development. Their proposal demonstrated detailed knowledge necessary to design, test, analyze, and manufacture their launch vehicle. However, I note that while Rocket Lab proposed an adequate concept of operations, they are much further along in the development process, as reflected in their receipt of a strength for proposing a launch date over one year before the VCLS required date. I also note that like Virgin, Firefly and Rocket Lab both have significant excess performance capability above the VCLS required 60kg and significant strengths are appropriate for this discriminating aspect of their proposals. Ultimately, I agree that the Firefly and Rocket Lab proposals are deserving of their "Excellent" rating.

I next take note of the three offerors' demonstrated past performance. Particularly I note that while each of the three offerors did demonstrate some modicum of recent, relevant past performance, due to the nascent market conditions within the current small launch vehicle market as currently constituted, these companies are simply too new to have a portfolio of demonstrated past performance that would be fully indicative of future success. This is particularly true of Firefly and Rocket Lab, which have contracts for subsystem development and have demonstrated the key personnel from heritage aerospace companies that could be indicators of future success but no direct corollaries of size, content, and complexity as the VCLS requirement. I therefore agree with the evaluation team's assignment of "Moderate" levels of confidence in both Firefly and Rocket Lab's abilities to successfully carry out the VCLS requirement. I do make note that Virgin's performance on its DARPA ALASA contract to develop a smaller version of their LauncherOne vehicle reflects favorably upon their past performance and leads me to agree with the team's "High" level of confidence rating. While I agree that Virgin is deserving of a higher Level of Confidence rating in this area, within the entire evaluation scheme, I do not consider past performance to be a significant discriminator amongst the offerors.

I finally note the offeror's respective prices. Virgin Galactic submitted the lowest price, Firefly submitted the next lowest price, and Rocket Lab submitted the highest price of those offerors within the competitive range. In my dual role as contracting officer, I relied upon adequate price competition and comparison to published catalogue pricing to determine each of these prices to be fair and reasonable.

After ascertaining the risks and benefits associated with each proposal and taking in to account the government's significant backlog of U-class payloads, as well as the VCLS RFP provision that allows for the selection of multiple awardees, I find that all three proposals are most advantageous to the Government and therefore should be selected for award. Since each of the offerors remaining within the competitive range are being selected, no trade off analysis is required.


Norman R. Wolfinger
Contracting Officer/
VCLS Source Selection Authority

9/28/15
[Date]